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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/084,453	02/28/2002	Lingju Cao	219425US0	4985

22850 7590 01/07/2004

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EXAMINER

TRAN, THAO T

ART UNIT PAPER NUMBER

1711

DATE MAILED: 01/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/084,453	CAO ET AL.	
	Examiner	Art Unit	
	Thao T. Tran	1711	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 October 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 and 14-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 and 14-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

1. This is in response to the Amendment received on October 27, 2003. The text of those sections not included in this Office action can be found in a prior Office action.
2. Claims 1-12 and 14-19 are currently pending in this application. Claim 13 has been canceled. Claims 14-19 have been newly added.

Claim Objections

3. In view of the prior office action of June 26, 2003, the objection of claims 10-12 has been withdrawn due to the amendment made thereto.
4. Claim 9 is objected to because of the following informalities: it is preferred to change "obtainable", line 2, to --obtained--. Appropriate correction is required.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.
6. In view of the prior Office action of June 26, 2003, the rejection of claim 7 has been withdrawn due to the amendment made thereto.
7. Claims 1-19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitations "the enzymes" in line 4 and "the aggregated enzymes" in line 5. There is insufficient antecedent basis for these limitations in the claim.

Claim 10 is indefinite because the claim is directed to a product; however, the claim does not convey what the product comprises. Instead, the claim recites a method of producing the product. Applicants are required to recite positive limitations for the product.

Claim Rejections - 35 USC § 102

8. In view of the prior Office action of June 26, 2003, the rejection of claims 1-12, under 35 U.S.C. 102(b) as being anticipated by Keil et al. (US Pat. 4,686,243), has been withdrawn due to further consideration.

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

10. Claims 1-6, 8-12, and 17-19 are rejected under 35 U.S.C. 102(e) as being anticipated by Margolin et al. (US Pat. 6,359,118).

Margolin teaches crosslinked enzyme (glycoprotein) aggregates (crystals) and a method of preparing (see abstract); the method comprising providing a plurality of enzyme molecules

(glucose oxidase); aggregating the enzyme molecules by a precipitating agent (polyethylene glycol) (see col. 17, ln. 51-52; Example 2); crosslinking the aggregated enzyme molecules to one another with a crosslinking agent (see col. 9, ln. 1-10).

In regards to claims 1-6, 9-12, Margolin teaches the crosslinking agent to be a combination of glutaraldehyde and a diaminoalkane (diaminooctane) (see col. 25, ln. 67, bridging col. 26, ln. 3).

In regards to claim 8, Margolin teaches the enzymes to be lipase, esterase, or protease (see col. 8, ln. 28-34).

In regards to claim 17, Margolin teaches the use of the crosslinking agent to crosslink a protein molecule to another protein molecule (see col. 5, ln. 35-37).

In regards to claims 18-19, Margolin further teaches the enzyme crystals being combined with solid carrier materials (see col. 11, ln. 5-6, 25-26; col. 12, ln. 16-17). Although Margolin is silent with respect to the enzyme crystals being crosslinked with the carrier, since Margolin teaches the same enzyme crystals with the same crosslinking agent to the presently claimed invention, the reference's enzyme crystals would inherently be crosslinked to the carrier.

Allowable Subject Matter

11. Claims 7 and 14-16 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

12. The following is a statement of reasons for the indication of allowable subject matter: no prior art has been found to teach, disclose, or fairly suggest a method of making crosslinked

enzyme aggregates, the method comprising providing a crosslinking agent, wherein the crosslinking agent is prepared by combining a second compound and a first compound in a molar ratio of 10-1:1; in combination with all of the other limitations of claim 1.

Response to Arguments

13. Applicant's arguments with respect to the rejection of claims 1-12 over Keil et al (US Pat. 4,686,243) have been considered but are moot in view of the new ground(s) of rejection.

Contact Information

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thao T. Tran whose telephone number is 571-272-1080. The examiner can normally be reached on Monday-Friday, from 8:30 a.m. - 5:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on 571-272-1078. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

Thao Tran

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December 22, 2003